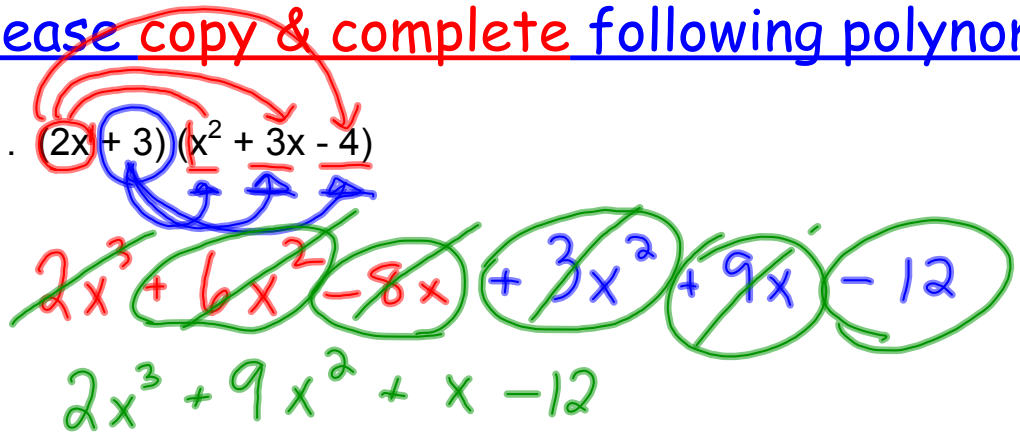
Friday, October 28

- Practice some multiplication questions
- Notes/Examples on Factoring a trinomial using the "difference of squares".....last one, I promise!!
- Practice Questions
- If time, we will create a master list of examples for multiplication and factorization of polynomials! If not, we will do this first thing on Monday.

Please copy & complete following polynomials:

1. $(2x + 3)(x^2 + 3x - 4)$



2. $(3xy - 2y)(x^2y + 3y^2 - 2x)$

2. $(3xy - 2y)(x^2y + 3y^2 - 2x)$

$3x^3y^2 + 9xy^3 - 6x^2y$

$-2x^2y^2 - 6y^3 + 4xy$

3.8 Factoring Special Polynomials

LESSON FOCUS Investigate some special factoring patterns.

Make Connections

The area of a square plot of land is one hectare (1 ha).

$1 \text{ ha} = 10\,000 \text{ m}^2$

So, one side of the plot has length $\sqrt{10\,000}$ m = 100 m

Suppose the side length of the plot of land is increased by x metres.
What binomial represents the side length of the plot in metres?
What trinomial represents the area of the plot in square metres?

Determine each product.

$(x+1)^2$

$= (x+1)(x+1)$

$= x^2 + 1x + 1x + 1$

$= x^2 + 2x + 1$

$(x-3)^2$

$= (x-3)(x-3)$

$= x^2 - 3x - 3x + 9$

$= x^2 - 6x + 9$

$(2x+1)^2 = (2x+1)(2x+1)$

$4x^2 + 2x + 2x + 1$

$4x^2 + 4x + 1$

$(3x-1)^2 = (3x-1)(3x-1)$

$9x^2 - 3x - 3x + 1$

$9x^2 - 6x + 1$

What patterns do you see in the trinomials and their factors?

Determine each product.

$(x+1)^2$

$= x^2 + 2x + 1$

$(x-3)^2$

$= x^2 - 6x + 9$

$(2x+1)^2$

$4x^2 + 4x + 1$

$(3x-1)^2$

$9x^2 - 6x + 1$

What patterns do you see in the trinomials and their factors?

3.8 Factoring Special Polynomials

What patterns do you see in the trinomials and their factors?

How could you use the patterns to factor these trinomials?

$4x^2 + 20x + 25$ $9x^2 - 12x + 4$

Write two more polynomials that have the same pattern, then factor the polynomials.

Write a strategy for factoring polynomials of this type.

Example 1 Factoring a Perfect Square Trinomial COPY

Factor each trinomial. Verify by multiplying the factors.

a) $4x^2 + 12x + 9$

The square root of the first term

The square root of the second term

$(2x + 3)^2$

b) $4 - 20x + 25x^2$

The square root of the first term

The square root of the second term

$(2 - 5x)^2$

CHECK YOUR UNDERSTANDING

8. Factor each trinomial. Verify by multiplying the factors.

Pg. 194

a) $4x^2 - 12x + 9$ **b)** $9 + 30n + 25n^2$

c) $81 - 36v + 4v^2$ **d)** $25 + 40h + 16h^2$

e) $9g^2 + 48g + 64$ **f)** $49r^2 - 28r + 4$

a) $(2x - 3)^2$ b) $(3 + 5n)^2$

c) $(9 - 2v)^2$ d) $(5 + 4h)^2$

e) $(3g + 8)^2$ f) $(7r - 2)^2$

Another example of a special polynomial is a **difference of squares.**

Example 2 Factoring a Difference of Squares

COPY

Factor each binomial.

a) $25 - 36x^2$

b) $x^4 - 16y^4$

$(5 + 6x)(5 - 6x)$

check

$25 + 30x - 30x - 36x^2$

$25 - 36x^2$

$4y^2$

3.8 Factoring Special Polynomials

SOLUTION

CHECK YOUR UNDERSTANDING

3. Factor each binomial.

a) $81m^2 - 49$

b) $162v^4 - 2w^4$

Practice Questions:

Pg. 194 #8 (like example 1)
Pg. 194 #10 (like example 2)

10. Factor each binomial. Verify by multiplying the factors.

a) $9d^2 - 16f^2$
b) $25s^2 - 64t^2$
c) $144a^2 - 9b^2$
d) $121m^2 - n^2$
e) $81k^2 - 49m^2$
f) $100y^2 - 81z^2$
g) $v^2 - 36t^2$
h) $4j^2 - 225h^2$